



Operating Manual

For



**TIGWELD 160SX/200SX
INVERTER AC/DC TIG/STICK WELDERS
110V/220V**

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THANK YOU!

We, at LONGEVITY, want to thank you for purchasing our product. You are almost ready to experience Longevity Welding first hand. Longevity definitely appreciates your business and understand that this equipment may be overwhelming to setup and operate so we have prepared a manual that will assist you in understand your new plasma cutter/welder. If you have any questions during or after reading this manual, please feel to contact us! Please take a moment to register your product on our website at www.longevity-inc.com or www.lweld.com

Once again, thank you for choosing Longevity as your main welding supplier!

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Dealers: dealers@longevity-inc.com

Complaints: complaints@longevity-inc.com

Please join our welding forums to share welding tips and tricks, to receive useful information from customers who also use our products, and to be a part of the Longevity™ welding community at www.freeweldingforum.com

Warranty

LONGEVITY Plasma Cutters, Welders, and Multi-Purpose Welders are covered for specific Parts and Labor warranty at our facility. For detailed information regarding your specific LONGEVITY welder or cutter, please view our Terms and Policies page on our website at the following website link: <http://www.longevity-inc.com/terms/>

Shipping Damage

Your machine is insured against damage during shipping. Keep all packing materials and containers in case machine must be returned. We will initiate a claim with the shipping company to cover damage or loss. If there is shipping damage upon opening your package, our customer service team will work with you to get the matter resolved.

In Warranty Service

Customers, who own machines that are in warranty and require service, should contact our Warranty Department by email at help@longevity-inc.com to obtain a return authorization code. In addition to the warranty we offer, we would like for you to register your product on our website at www.longevity-inc.com/resources. Remember, warranty starts from the date of purchase. For your convenience, write your order information below so you can track your order in case you need warranty work.

Order No.: _____

Date of Purchase: _____

Warranty Period: _____

Out-of-Warranty Service

Customers, who own machines that are out of warranty and require service, should contact us for an estimate. Longevity offers an exchange program on out of warranty units. We also help non LONGEVITY customers with repairs, replacement, and service.

If your unit is not manufactured by Longevity and you cannot receive service from your manufacturer or seller, Longevity will lend out hand. Our warranty policy is also available for all plasma cutters and welders. For more information, please email us at help@longevity-inc.com

Warnings and Safety

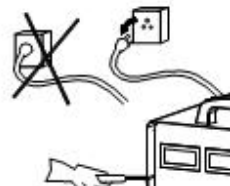
Welding and plasma cutting may be dangerous to the operator and to bystanders, if the equipment is not operated properly. Welding or cutting must be performed in accordance with all relevant safety regulations. Carefully read and understand this instruction manual before installing and operating this equipment.

Changing function modes during welding may damage equipment.

Before welding, disconnect the electrode-holder cable from the equipment.

A circuit breaker is required to prevent electrical overload of the equipment.

Only high quality welding tools should be used.



Electric Shock can be fatal.

Ensure that ground cable is connected in accordance with applicable safety codes.

Never touch electrodes, wires, or circuit components with bare hands. Wear dry welding gloves when welding.

The operator must be insulated from the work piece.



Smoke and gas can be harmful to health.

Ensure that the working area is well ventilated.

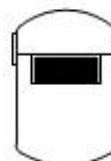
Avoid breathing smoke and gas generated during the welding process. Cutting and welding can cause cancer because of the smoke that comes from the welds and cuts.

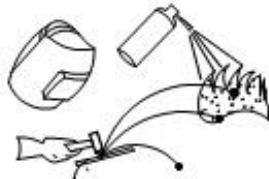



Arc-light emission can be harmful to eyes and skin.

Always wear a welding helmet, anti-radiation glass, and work clothes while welding.

Ensure that people in or near the working area are protected.



<p>Welding splash is a fire hazard.</p> <p>Keep flammable material away from the work place.</p> <p>Keep a fire extinguisher nearby, and have all personnel trained in its use.</p> <p>Surface noise generated while welding or cutting can be harmful to hearing.</p>	 A line drawing showing a welding torch at the bottom left, with several curved lines representing sparks or molten metal splashing upwards and to the right. Above the torch, there are three separate shapes: a circle, a cylinder, and a jagged, flame-like shape, representing various types of hazards or components affected by the splashes.
<p>In the event of a machine fault.</p> <p>Refer to this instruction manual.</p> <p>If the fault cannot be determined, contact your local dealer or supplier for assistance.</p>	 A line drawing of a person's head and shoulders. The person is wearing safety glasses and is looking down at an open book or manual that is resting on a surface in front of them. Their hands are positioned as if they are turning the pages.

Safety Tips

Consider the following tips to ensure safe operation of your welding/cutting equipment:

- Ensure that this welding equipment is installed in an area free of corrosive chemical gases, flammable gases or materials, and explosive chemicals.
- The area should contain little dust, and have a humidity of no more than 80%.
- Operate the welding equipment in an area sheltered from direct sunlight and precipitation. Work area temperature should be maintained at -10°C to +40°C;
- If, because of an overload, the machine suddenly stops, and it is necessary to restart it, leave the internal fan operating to lower the inside temperature.
- Always wear protective clothing and a welding mask to protect your skin.
- Wear safety goggles designed to darken the arc generated by your machine.
- Wear suitable noise protection to protect your hearing.
- Ensure that machine is grounded through the power cord or on the machine case.
- Never operate the machine in bare feet or on a wet floor.
- Never switch the machine off while it's in use. Doing so will damage the internal circuitry.
- Ensure that your circuit breaker is rated to handle the current requirements of your machine.
- Use a UL approved receptacles and plugs with your machine. Never hard wire the machine to main power.
- Work in a well-ventilated area to avoid smoke. Keep your head out of the smoke. Ensure that air is flowing away from you to avoid inhaling smoke.
- Ensure proper ventilation through the machine's louvers. Maintain a distance of at least 12 inches between this cutting equipment and any other objects in the work area.
- Use a screen or curtain designed to keep passer byes from viewing the arc.
- The arc spray and metal spray from machine use may cause nearby fires. Use caution.
- If, after reviewing this manual, you have any problems in setting up or operating your machine, contact us at help@longevity-inc.com.

Description of this welder



The TIGWELD 160SX and 200SX models are the newest additions to join the line of LONGEVITY TIG welder/stick welder combination units!

LONGEVITY has both hobbyists and the professional welders in mind with the TIGWELD™ 160 SX and 200SX by combining AC/DC TIG welding with the capability of stick welding at an affordable price with a DUAL-VOLTAGE capability. This compact, versatile unit offers the user a simple array of controls to accurately set the welder to perform under a wide variety of situations including fine aluminum welding. The TIGWELD™ 160 SX and 200 SX allows the welder to easily switch from 220v to 110v with the adapter plug that is included while being able to produce 160 amps or 200 amps on both AC and DC TIG and 140 amps or 160 amps on the stick side with their respective models. Extremely user friendly, and portable makes this your go to machine for TIG welding.

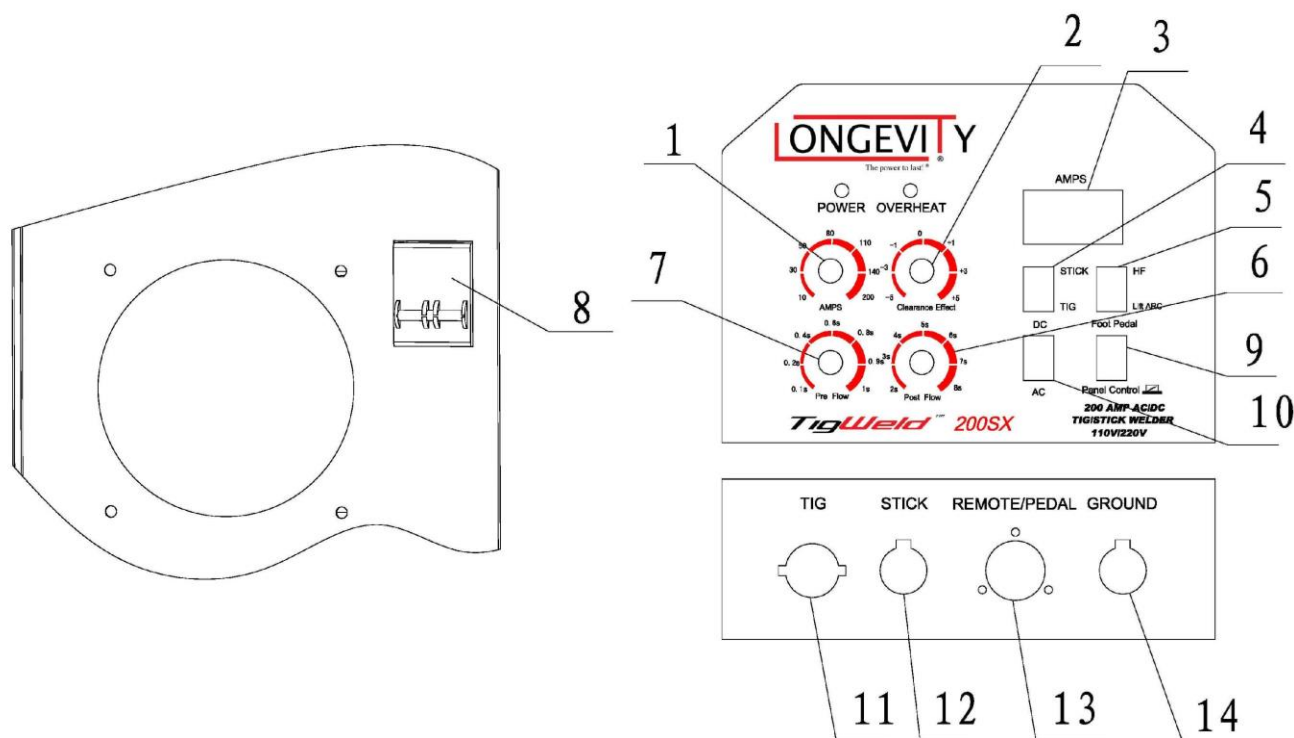
Specifications and Ratings

parameter \ model	TIGWELD 160SX		TIGWELD 200SX	
Power voltage	1phase110V±15%	1phase220V±15%	1phase110V±15%	1phase220V±15%
Frequency (Hz)	50/60		50/60	
Rated input current (A)	TIG: 37.4	TIG: 20.4	TIG: 37.4	TIG: 28
	STICK: 55.8	STICK: 32.9	STICK: 58.2	STICK: 42.2
Output current regulation (A)	TIG: 10~150	TIG: 10~160	TIG: 10~150	TIG: 10~200
	STICK: 30~140	STICK: 30~160	STICK: 30~145	STICK: 30~195
No-load voltage (V)	50~80		50~80	
Rated working voltage (V)	TIG: 16	TIG: 16.4	TIG: 16	TIG: 18
	STICK: 25.6	STICK: 26.4	STICK: 25.8	STICK: 27.8
Pre gas time (Seconds)	0-1		0-1	
Duty cycle (%)	60% @ 160 amps @ 220v		60% @ 200amps @ 220V	
Post gas time (Seconds)	2-10		2-10	
Foot Pedal	Yes		Yes	
Arc Ignition Mode	High Frequency		High Frequency	
Efficiency (%)	80		80	
Load duration factor (%)	60		60	
Power factor	0.73		0.73	
Class of insulation	F		F	
IP code	IP21		IP21	
Weight (kg)	28.5		30.7	
Overall dimension (mm)	705×300×565		705×300×565	
Max welding thickness (mm)	8		10	

SETUP:

Description of the panel function

Figure for TIGWELD 200SX panel



1. Current adjusting knob	2. Cleaning pulse width adjustment knob
3. Current meter	4. ARC/TIG change-over switch
5. HF/Life ARC change-over switch	6. Last flow time adjustment
7. Pre-flow time adjustment	8. Power switch
9. Pulse frequency change-over switch	10. AC/DC change-over switch
11. TIG welding torch interface	12. STICK welding interface
13. TIG welding torch switch/ Remote control socket	14. Ground clamp interface

Controls/ Connections:

- 1) **Amperage knob:** The amperage knob controls the output amperage of the welding machine. If the foot pedal is connected, the amperage is controlled with the foot pedal, and not the Amperage knob.
- 2) **Cleaning Effect Adjustment:** The Clearance effect adjustment is used to control heat between the workpiece and the tungsten. Turning it positive will allow for better cleaning but less penetration, while dialing in a more negative setting allows for more penetration but less cleaning. When at the “O” position, the ratio is 50% to 50%; at “5” position, ratio is 80%, and at “-5” position, ratio is 20%
- 3) **Digital Amperage Display:** Using digital meters helps the user set amperage quickly while STICK welding or TIG welding.
- 4) **STICK/TIG switch:** Rocker switch to control which process is used for welding.
- 5) **Post-Flow Adjustment:** Controls the seconds in which the shielding gas is allowed to continue to flow through the torch after the foot pedal is trigger is depressed.
- 6) **Pre-Flow Control:** Controls the amount of time (measured in tenths of a second) that the shielding gas is allowed to flow though the torch before the arc is ignited.
- 7) **Power Switch:** Located in the back of the machine. Powers the machine on or off.
- 8) **Foot Pedal/ Panel Control Switch:** Allows the user to select either option of controlling the amperage, either through the control panel, or with the included foot pedal.
- 9) **AC/DC Switch:** Easy switching between AC and DC welding. DC welding being used for steel while the Ac setting is used for aluminum welding.
- 10) **TIG Shielding Gas Connection:** The shielding gas connection needs to be threaded in tightly. (Avoid over-tightening)
- 11) **Stick Welding Connection:** Connect the included stinger for stick welding.
- 12) **TIG Welding Panel Control:** Connect the TIG torch connector in order to control amperage via the panel controls.
- 13) **Foot Pedal Connection:** Connect the foot pedal connection in order to control amperage with the included foot pedal.
- 14) **Ground Clamp Control:** Insert connector and twist clockwise to secure the ground clamp.

- 15) Overheat Protection Light:** If the welding machine exceeds the duty cycle in operation, it may go into a protective state and stop working. Under these circumstances do not power off the machine. This allows the internal cooling fan to continue working to cool your machine. Once the machine cools down to safe temperatures, you can continue to safely operate the machine.
- 16) ** HF/Lift Start** :** Some models may include a rocker switch which allows the user to turn off the HF start and use Lift Arc to start the arc on the TIG torch

Routine maintenance

The life of your machine and the quality of the work performed using your machine, will be enhanced by practicing periodic routine maintenance.

- At regular intervals, clear dust that may accumulate in the machine using clean and dry compressed air. If the working condition has heavy smoke and pollution, the welding machine should be cleaned once a month.
- Keep the machine exterior clean with mild soap and water.
- Do not walk on or store items on the cables or cords.
- Do not jar, drop, or stack items on top of the machine.
- Always connect the machine to a well-grounded electrical outlet.
- Always check the torch consumables before and after use and ensure that they are clear of obstructions, and that no parts are damaged.
- Replace any worn or damaged consumables before using machine.
- For periods of prolonged non-use, remove cables and store them in their original boxes in a cool dry place.

Troubleshooting

A、 Black welding spot

——This shows the welding spot is oxidized without being protected effectively and you can make the following inspection :

1. Make sure that the valve of argon cylinder has been opened with sufficient pressure. As a rule, if the pressure within the cylinder is lower than 0.5MPa, then it is necessary to refill the cylinder.
2. Check if the argon flow-meter is turned on with sufficient flow. You can select different flow rates in light of varying welding current, but too small flow may lead to inadequate gas stiffness and thus failure to cover all the welded spots. We suggest argon flow should never be lower than 3l/min no matter how weak the current will be.
3. The easiest way to check gas delivery is to touch the nozzle of welding torch to see whether the gas passage of the welding torch is blocked.
4. Poor sealing of gas passage or lower gas purity will also give rise to welding quality trouble.
5. Strong air flow in the environment may also lead to deterioration of welding quality.

B、 Difficulty in arc starting with easy arc breaking :

1. Make sure that the tungsten electrode in use is of good quality as discharge ability of inferior tungsten electrode may fail the requirement;
2. Tungsten electrode without sharpening treatment is also unable to start arc and leads to unstable arc.

C、 Output current can't reach the rated value :

Deviation of power voltage from the rated value will lead to unconformity of output current value with the set value. When power voltage is lower than the rated value, maximum output current of the welder may also be lower than the rated value.

D、 Unstable current in the operation of the welder :

This may be attributed to the following factors:

1. Change in grid voltage;
2. Interference from the power grid or other power equipments.

E、 Severely burn of the tungsten needle

The duty cycle is adjusted too large, causing emission from the workpiece to the tungsten electron for too long, resulting in severe heat of the tungsten needles.

F、 The oxide film can't be torn when welding aluminum:

1. The welding gear is selected wrong.
2. The duty cycle is adjusted too small;
3. The secondary inverter has field pipe damage.

G、 **The abnormal pilot lamp is on:**

- 1、 The light is on when the welder work abnormally, please turn off the power switch and then reboot the machine, it can continue to use if it return to normal,
- 2、 If the light is on repeatedly, please refer to the professional or the manufacturer for repair.

LONGEVITY® Global, Inc. thanks you for your purchase and the opportunity to be able to serve you. If, after reviewing this manual, you have any problems in setting up or operating your machine, contact us at help@longevitywelding.com

LONGEVITY® Global, Inc.

Toll-Free 1-877-LONG-INC / 1-877-566-4462

Website: www.longevity-inc.com

Sales: sales@longevitywelding.com

Customer Service: help@longevitywelding.com

Dealers: dealers@longevity-inc.com

Please join our welding forums to share welding tips and tricks, to receive useful information from customers who also use our products, and to be a part of the LONGEVITY® welding community at www.freeweldingforum.com

For the coolest LONGEVITY sponsored race teams plus a complete racing forum that covers everything from Drag Racing to RC Car Racing, please check out www.longevity-racing.com!

Enjoy your new welding machine from LONGEVITY! Thanks again!